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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/932,128	08/16/2001	Juan Yguerabide	11032-021	5342

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EXAMINER	
YANG, NELSON C	
ART UNIT	PAPER NUMBER
1641	

MAIL DATE	DELIVERY MODE
12/28/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	09/932,128	YGUERABIDE ET AL.	
	Examiner	Art Unit	
	Nelson Yang	1641	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 October 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *49-52,55,63,66,68,71-73,76,80,84,166-173 and 176-181* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *49-52,55,63,66,68,71-73,76,80,84,166-173 and 176-181* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. Applicant's amendment of claims 63, 66, and 68 is acknowledged and has been entered.

2. Claims 49-52, 55, 63, 66, 68, 71-73, 76, 80, 84, 166-173, 176-181 are currently pending.

Rejections Withdrawn

3. Applicant's arguments, see p.7, filed October 5, 2007, with respect to the objection of claims 63 and 66 have been fully considered and are persuasive. The objection of claims 63 and 66 has been withdrawn.

4. Applicant's arguments, see p.7-8, filed October 5, 2007, with respect to the rejection of claims 49-52, 55, 63, 66, 68, 71-73, 76, 80, 84, 166-173, 176-181 under 35 U.S.C. 112, second paragraph, have been fully considered and are persuasive. The rejection of claims 49-52, 55, 63, 66, 68, 71-73, 76, 80, 84, 166-173, 176-181 under 35 U.S.C. 112, second paragraph, has been withdrawn.

5. Applicant's arguments, see p.8-10, filed October 5, 2007, with respect to the rejection of claims 49, 52, 55, 63, 66, 67, 72, 80, 84 under 35 U.S.C. 102(b) as being anticipated by Patel et al. [WO 91/06036] have been fully considered and are persuasive. The rejection the rejection of claims 49, 52, 55, 63, 66, 67, 72, 80, 84 under 35 U.S.C. 102(b) as being anticipated by Patel et al. [WO 91/06036] has been withdrawn.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 49-52, 55, 63, 66, 68, 71-73, 76, 80, 84, 166-173, 176-179 are rejected under 35 U.S.C. 103(a) as being unpatentable over Margel [US 4,624,923] in view of Rembaum et al. [US 4,929,400] and further in view of Patel et al. [WO 91/06036].

With respect to claim 49, Margel teaches teaches different subpopulations of monodisperse "alkaline" polyacrolein microspheres coated with gold (column 10, examples 1-2), having diameters of 0.1 μ, 5 μ, and 0.4 μ (column 10, example 3). Margel further teaches that the microspheres may have bound anti-human chorionic gonadotropin antibody (column 9, lines 1-10). Although Margel teaches that the microspheres are monodisperse, Margel does not explicitly teach that they have a coefficient of variation in size of less than 5%, nor does not Margel teach that the coating is about 0.5, 0.8, 1, 1.5, 2, 3, 4, 5, 6, 9, 10, 12, 19, 20, 39, 49, or 74 nm thick.

Rembaum et al., however, teach microspheres comprising materials such as silver, gold, and polyHEMA and having precise size range with diameters below 1000 Angstroms (column 8, lines 41-54, lines 55-69), varying no more than plus or minus 1% (column 3, lines 65-68), and having covalent functional groups for further reaction and attachment to other materials such as antibodies or proteins (column 3, lines 50-55). Rembaum et al. further teach that uniformly sized, small microsphere of the order of 100 Angstroms to 10 microns in diameter are preferred as

carriers for biological substances such as antigens or antibodies, and that they provide monodispersity and result in less non-specific binding to the surface of cells or containers (column 2, lines 60-67).

Patel et al. further teach nanoparticles comprising a silver or gold coatings (p.7, lines 1-15), that may be 1.5 nm and 5 nm thick (fig. 22, p.5, lines 25-32), which is useful for exhibiting an enhanced plasmon resonance effect for enhancing optical processes (p.15-20), such as optical detection methods.

Therefore, it would have been obvious for the microspheres of Margel to have precise size ranges varying no more than plus or minus 1%, as they are preferred as carriers for biological substances such as antigens or antibodies, as well as providing monodispersity and result in less non-specific binding to the surface of cells or containers. It would also have been obvious to have had silver or gold coatings 1.5 nm and 5 nm thick in order to enhance optical detection processes.

8. With respect to claims 50-52, Margel teaches anti-human chorionic gonadotropin antibody bound to the microspheres (column 9, lines 1-10), which are both proteins and biopolymers. Rembaum et al. also teach microspheres created from polymers, proteins (column 3, lines 40-45). Although neither Margel nor Rembaum et al. specifically recite that proteins do not significantly interact with light in the visible region of the spectrum, this property is inherent in proteins, and therefore would be anticipated by Margel and Rembaum et al.

9. With respect to claims 55, Rembaum et al. teach microspheres (column 3, lines 40-45) that are spheroid in shape (column 3, lines 60-63).

10. With respect to claim 63, Margel teaches a metal-containing polyaldehyde micropshere composed of a polyaldehyde microsphere to which a transient metal is bound (column 4, liens 12-16). Rembaum et al. teach microspheres created from polymers, proteins, waxes, starches, glasses and metals (column 3, lines 40-45), and further comprising materials such as silver, gold, and polyHEMA and having precise size range with diameters below 1000 Angstroms (column 8, lines 41-54, lines 55-69).

11. With respect to claim 66, Margel teaches a metal-containing polyaldehyde micropshere composed of a polyaldehyde microsphere to which a transient metal is bound (column 4, liens 12-16). Rembaum et al. teach microspheres created from polymers, proteins, waxes, starches, glasses and metals (column 3, lines 40-45), and further comprising materials such as silver, gold, and polyHEMA and having precise size range with diameters below 1000 Angstroms (column 8, lines 41-54, lines 55-69).

12. With respect to claims 68, Margel teaches a metal-containing polyaldehyde micropshere composed of a polyaldehyde microsphere to which a transient metal is bound (column 4, liens 12-16). Rembaum et al. teach microspheres created from polymers, proteins, waxes, starches, glasses and metals (column 3, lines 40-45), and further comprising materials such as silver, gold, and polyHEMA and having precise size range with diameters below 1000 Angstroms (column 8, lines 41-54, lines 55-69).

13. With respect to claims 71-73, Margel teaches that the metal bound to the microspheres may be magnetic (column 2, lines 20-25). Rembaum et al. teach that magnetic fillers can be incorporated into the particles used to form the microspheres (column 3, lines 45-50).

14. With respect to claims 76, 80, 84, Margel teach polyaldehyde microspheres coated with silver or gold (column 2, lines 15-30), where the sizes of the populations include 0.4 μ, 0.1 μ, 0.05 μ diameters (column 11-13, examples 8-25). Rembaum et al. teach microspheres created from polymers, proteins, waxes, starches, glasses and metals (column 3, lines 40-45), and further comprising materials such as silver, gold, and polyHEMA and having precise size range with diameters below 1000 Angstroms (column 8, lines 41-54, lines 55-69).

15. With respect to claims 166, 168, 172, Margel teaches populations of polyaldehyde microspheres coated with silver or gold (column 2, lines 15-30), where the sizes of the populations include 0.4 μ, 0.1 μ, 0.05 μ diameters (column 11-13, examples 8-25), and further comprising a drug, antibody, antigen, enzyme or other protein (claim 7).

16. With respect to claim 167, Margel teaches microspheres comprising silver, palladium and platinum that result in black color changes, as well as microspheres comprising gold that result in purple color changes (column 6, lines 11-30).

17. With respect to claims 169-171, Margel teaches teaches different subpopulations of monodisperse "alkaline" polyacrolein microspheres coated with gold (column 10, example 1), having diameters of 0.1 μ, 5 μ, and 0.4 μ (column 10, example 3). Margel further teaches that the microspheres may have bound anti-human chorionic gonadotropin antibody (column 9, lines 1-10). Rembaum et al. also teach microspheres created from polymers, proteins, waxes, starches, glasses and metals (column 3, lines 40-45).

18. With respect to claim 173, Margel teaches microspheres having diameters of 0.1 μ (column 10, example 3). Rembaum et al. teach microspheres having precise size range with diameters below 1000 Angstroms (column 8, lines 41-54, lines 55-69).

19. With respect to claims 176, 178, Margel teaches microspheres having diameters of 0.1 μ (column 10, example 3) with bound anti-human chorionic gonadotropin antibody (column 9, lines 1-10).

20. With respect to claims 177, 179, Margel teaches microspheres having diameters of 0.1 μ (column 10, example 3) with bound anti-human chorionic gonadotropin antibody (column 9, lines 1-10). Rembaum et al. also teach microspheres created from polymers, proteins, waxes, starches, glasses and metals (column 3, lines 40-45), and further comprising materials such as silver, gold, and polyHEMA and having precise size range with diameters below 1000 Angstroms (column 8, lines 41-54, lines 55-69).

21. Claims 180, 181 is rejected under 35 U.S.C. 103(a) as being unpatentable over Margel [US 4,624,934]] in view of Rembaum et al. [US 4,929,400], and further in view of Tarcha et al. [US 5,567,628].

Margel discloses populations of polyaldehyde microspheres coated with silver or gold and further comprising antibodies. Margel fails to teach that the antibodies are anti-biotin, anti-fluorescein or anti-digoxinin antibodies.

Tarcha et al., however teach the use of anti-biotin antibodies as a means for attaching biotinylated antibodies (column 23, lines 20-45).

Therefore it would have been obvious in the invention of Margel and Rembaum et al. to have microspheres comprising anti-biotin antibodies, as suggested by Tarcha et al., in order to attach biotinylated antibodies.

Response to Arguments

22. Applicant's arguments filed October 5, 2007 with respect to the rejection of claims 49-52, 55, 63, 66, 68, 71-73, 76, 80, 84, 166-173, 176-179 are rejected under 35 U.S.C. 103(a) as being unpatentable over Margel [US 4,624,923] in view of Rembaum et al. [US 4,929,400] and further in view of Patel et al. [WO 91/06036] have been fully considered but they are not persuasive. With respect to applicant's argument that Margel does not teach the coefficient of variation in size of the particle with a surface coat, the Office notes that this is why Rembaum was cited to provide motivation for having particles wherein the coefficient of variation in size is less than 5%. Furthermore, the advantages disclosed by Rembaum et al. would apply to all particles with size ranges varying no more than plus or minus 1%, and not just particles without coatings.

23. With respect to applicant's arguments that all the cited references must recite all the claim limitations, the Office notes that this would result in each of the references anticipating the claims under 35 U.S.C. 102 instead.

24. With respect to applicant's argument that the Office has not provided a reason for combining the references, the Office notes that as discussed in the previous office action mailed April 9, 2007, and further reiterated above, that Rembaum et al. teach that uniformly sized, small microsphere of the order of 100 Angstroms to 10 microns in diameter are preferred as carriers for biological substances such as antigens or antibodies, and that they provide monodispersity and result in less non-specific binding to the surface of cells or containers (column 2, lines 60-67), thus providing motivation for combining the references.

25. For these reasons, applicant's arguments are not found persuasive.

Conclusion

26. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nelson Yang whose telephone number is (571) 272-0826. The examiner can normally be reached on 8:30-5:00.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Long V. Le can be reached on (571)272-0823. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

27. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Nelson Yang
Patent Examiner
Art Unit 1641

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